



- Board of Directors
Engineering and Operations Committee

11/8/2011 Board Meeting

8-4

Subject

Appropriate \$3.7 million; and award \$2,556,618 contract to J.F. Shea Construction, Inc. to rehabilitate hydraulic gates at Eagle Rock Tower and Puddingstone Spillway (Approp. 15441)

Description

This action authorizes the rehabilitation of five slide gates at Eagle Rock Tower and replacement of a radial gate at Puddingstone Spillway. The gates are essential for flow control and isolation of the Upper Feeder and Central Pool portion of the distribution system.

Timing and Urgency

The five slide gates in the Eagle Rock Tower are used to regulate flows in the Upper Feeder, Santa Monica Feeder, and Palos Verdes Feeder. The Puddingstone Spillway radial gate is used to isolate a portion of the Upper Feeder. In the event of closure of the gates in the Eagle Rock Tower, the single Puddingstone radial gate would need to close to shut down flows in the Upper Feeder. The existing gates are corroded and need to be rehabilitated or replaced.

Failure of the gates could interrupt deliveries to 17 cities within the service areas of Three Valleys Municipal Water District, Foothill Municipal Water District, and the cities of Pasadena and San Marino. Staff recommends proceeding with rehabilitation of the Eagle Rock Tower and Puddingstone Spillway gates at this time due to the long lead-time to manufacture and deliver the gates. The gates are scheduled to be installed in December 2012 during a planned shutdown of the F. E. Weymouth Water Treatment Plant and the Upper Feeder.

This project has been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria, and is categorized as an Infrastructure Rehabilitation project. This project is budgeted within Metropolitan's CIP for fiscal year 2011/12.

Background

The Upper Feeder was constructed in 1936 as part of Metropolitan's original distribution system. The feeder is approximately 60 miles long, with a diameter ranging from 84 to 152 inches. It delivers untreated water from Lake Mathews to the Weymouth plant in La Verne, and treated water from the Weymouth plant to the Eagle Rock Control Tower in the city of Los Angeles. The treated-water portion of the Upper Feeder is approximately 25 miles in length, and is comprised of a series of pipelines and deep tunnels through the San Gabriel Mountains that have few isolation points due to the depth of the feeder.

Eagle Rock Tower, which is the western terminus of the treated-water portion of the Upper Feeder, contains five motor-operated slide gates. The slide gates were initially installed in 1940. Three 2.5-foot by 8-foot gates regulate flow from the Upper Feeder into Eagle Rock Tower, and two 6-foot by 6-foot gates regulate flow from Eagle Rock Tower to the Palos Verdes and Santa Monica Feeders. The gates are operated to maintain appropriate water levels within Eagle Rock Tower to control flows in the downstream feeders.

A 2006 inspection confirmed that all five gates within Eagle Rock Tower are moderately corroded but can be refurbished and reinstalled. However, appurtenant equipment on the gates (gate stems, gate guides, clamps, shaft, shaft guides, nuts and bolts) have deteriorated to the point that they must be replaced.

Puddingstone Spillway is located on the Upper Feeder just west of the Weymouth plant. The single 11-foot by 15-foot radial gate at this facility was also installed in the 1940s to isolate the treated-water portion of the Upper Feeder between Puddingstone Spillway and Eagle Rock Tower. The gate has not been rehabilitated since its initial installation and has corroded to an extent that it must be replaced. It is currently locked in the open position to prevent accidental closure.

The existing gates at Eagle Rock Tower and Puddingstone Spillway need to be rehabilitated to maintain delivery reliability. Without operational gates at both locations, a pipeline problem along the treated-water section of the Upper Feeder would require shutdown of the entire 25-mile feeder from the Weymouth plant to Eagle Rock, including the Weymouth plant itself. Such an outage would affect 14 active service connections serving Three Valleys Municipal Water District, Foothill Municipal Water District, and the cities of Pasadena and San Marino. In addition, since the Puddingstone gate is located downstream of the Weymouth plant, replacement of the existing gate with fully functional units would allow the Orange County Feeder and Middle Feeder to remain operational during inspection or repair of the downstream portion of the Upper Feeder. Under this project, the single radial gate will be replaced by two smaller slide gates which will be easier to manufacture, install and maintain.

Construction will take place during an eight-day shutdown of the Upper Feeder and Weymouth plant which is scheduled for December 2012. Planned contractor activities in advance of the shutdown include refurbishment of the five Eagle Rock Tower gates and fabrication of the two new slide gates for Puddingstone Spillway. Planned shutdown activities at Eagle Rock Tower include installation of the five rehabilitated gates and five Metropolitan-furnished actuators, and replacement of the appurtenant equipment. Planned shutdown activities at Puddingstone Spillway include removal of the existing radial gate and installation of the two new slide gates and two Metropolitan-furnished gate actuators. The actuators have been pre-purchased under a separate procurement contract, which was authorized by the Board in January 2011. Planned Metropolitan force activities during the shutdown include dewatering, disinfection, and return of the pipeline to service.

Eagle Rock Tower and Puddingstone Spillway Gate Rehabilitation – Construction Phase (\$3,700,000)

Specifications No. 1602A for the Eagle Rock Tower and Puddingstone Spillway Gate Rehabilitation was issued for bids on April 27, 2011. As shown in [Attachment 2](#), four bids were received and opened on September 27, 2011. The low bid from J.F. Shea Construction, Inc., in the amount of \$2,556,618, complies with the requirements of the specifications. The engineer's estimate was \$3.5 million. The three higher bids ranged from \$2,655,000 to \$3,670,000. For this contract, Metropolitan has established a Small Business Enterprise (SBE) participation level of at least 10 percent of the bid amount.

This action appropriates \$3.7 million in budgeted funds and awards a \$2,556,618 contract to J.F. Shea Construction, Inc. to refurbish and install five gates at Eagle Rock Tower, and install two new slide gates at Puddingstone Spillway. In addition to the amount of the contract, the requested funds include \$380,000 for Metropolitan force support, which includes: Supervisory Control and Data Acquisition (SCADA) system integration (\$72,500); and dewatering of the Upper Feeder, disinfection, water quality testing, and return of the feeder to service (\$307,500). The requested funds also include \$335,500 for construction inspection; \$85,500 for Metropolitan staff to review submittals from the contractor, respond to requests for information, advise inspection staff on technical issues, and prepare record drawings; \$15,000 for technical support by the design consultant, Black and Veatch (see below); \$96,350 for public outreach activities and project management; and \$231,032 for remaining budget. Public outreach activities will include liaison with nearby residents during round-the-clock shutdown work, participation in community meetings, and holding progress meetings with the cities of San Dimas and La Verne.

Construction inspection will be performed by Metropolitan staff. The anticipated cost of inspection as a percentage of the total construction cost is approximately 10.3 percent. Engineering Services' goal for inspection of contracts with construction cost greater than \$3 million is 9 to 12 percent. For this project, the total cost of

construction is \$3.24 million, which includes \$305,483.16 for procurement of the seven motor-operated actuators. This procurement was authorized by the Board in January 2011.

Technical support is recommended to be provided by Black and Veatch under an existing board-authorized agreement. Black and Veatch is the engineer of record for the design of the two new slide gates at Puddingstone Spillway, and will advise Metropolitan on related submittals and requests for information during construction. Black and Veatch was selected through a competitive process via Request for Qualifications No. 927. For this agreement, Metropolitan established a SBE participation level of 18 percent. No amendment to the existing Black and Veatch agreement is required for this work. The estimated cost of Black and Veatch's services is \$15,000.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2011/12 capital budget. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

This project is included within capital Appropriation No. 15441, the Conveyance and Distribution System Rehabilitation Program - Phase 2, which was initiated in fiscal year 2006/07. Appropriation No. 15441 also includes projects such as prestressed concrete cylinder pipeline repairs of the Calabaras Feeder, Lake Skinner Outlet Conduit, Rialto Pipeline, San Diego Pipeline No. 5, and Sepulveda Feeder. With the current action for the gate rehabilitation project, the total funding for Appropriation No. 15441 will increase from \$33,179,000 to \$36,879,000.

This project is consistent with Metropolitan's goals for sustainability by enhancing reliability of the existing conveyance and distribution system in order to maintain reliable water deliveries in the future.

Project Milestone

January 2013 – Completion of construction of Eagle Rock Tower and Puddingstone Spillway Gate rehabilitation

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the funding, design, and minor alterations, reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 3 Categorical Exemptions (Sections 15301, 15302, and 15303 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under three Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; and Class 3, Section 15303 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$3.7 million; and
- b. Award \$2,556,618 contract to J.F. Shea Construction, Inc. to rehabilitate the gates at Eagle Rock Tower and Puddingstone Spillway.

Fiscal Impact: \$3.7 million in budgeted funds (Approp. 15441)

Business Analysis: This option will protect Metropolitan's assets, enhance reliability of water deliveries to member agencies, and reduce the risk of costly emergency repairs.

Option #2

Do not award the construction contract and readvertise in an attempt to receive more favorable bids.

Fiscal Impact: None

Business Analysis: This option may or may not result in a lower bid, and would delay rehabilitation of the gates at Eagle Rock Tower and Puddingstone Spillway. Without operational gates, the treated-water portion of the Upper Feeder and the Weymouth plant would need to be shut down in the event of planned or unplanned repairs of the Upper Feeder. This option could lead to higher costs, more extensive repairs, and additional system shutdowns.

Staff Recommendation

Option #1


 _____ 10/17/2011
 Gordon Johnson *Date*
 Manager/Chief Engineer,
 Engineering Services


 _____ 10/25/2011
 Jeffrey Kightlinger *Date*
 General Manager

Attachment 1 – Financial Statement

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Financial Statement for Conveyance and Distribution System Rehabilitation Program – Phase 2

A breakdown of Board Action No. 37 for Appropriation No. 15441 to rehabilitate the gates at Eagle Rock Tower and Puddingstone Spillway¹ is as follows:

	Previous Total Appropriated Amount (Nov. 2011)	Current Board Action No. 37 (Nov. 2011)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 2,119,500	\$ -	\$ 2,119,500
Final Design	2,741,000	-	2,741,000
Owner Costs (Program mgmt., public outreach)	4,137,850	91,350	4,229,200
Submittals Review & Record Drwgs	30,750	85,500	116,250
Construction Inspection & Support	1,503,050	335,500	1,838,550
Metropolitan Force Construction	7,832,510	345,000	8,177,510
Materials & Supplies	1,459,400	35,000	1,494,400
Incidental Expenses	777,900	5,000	782,900
Professional/Technical Services	1,545,000	-	1,545,000
Black & Veatch	-	15,000	15,000
Equipment Use	236,200	-	236,200
Contracts	8,655,730	2,556,618	11,212,348
Remaining Budget	2,140,110	231,032	2,371,142
Total	\$ 33,179,000	\$ 3,700,000	\$ 36,879,000

Funding Request

Program Name:	Conveyance and Distribution System Rehabilitation Program – Phase 2		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15441	Board Action No.:	37
Requested Amount:	\$ 3,700,000	Capital Program No.:	15441-I
Total Appropriated Amount:	\$ 36,879,000	Capital Program Page No.:	281
Total Program Estimate:	\$ 106,335,000	Program Goal:	I-Infrastructure Reliability

¹ The total amount expended to date on the Eagle Rock Tower & Puddingstone Spillway Gate Rehabilitation project is approximately \$1,175,000.

The Metropolitan Water District of Southern California

Abstract of Bids Received on September 27, 2011 at 2:00 P.M.

Specifications No. 1602A

Eagle Rock Tower and Puddingston Spillway Gate Rehabilitation

The project consists of refurbishing and installing five slide gates, removing a single radial gate and replacing with two slide gates, installing Metropolitan-furnished actuators for each gate, providing new gate stems and guides, restoring damaged surfaces, and testing and commissioning all gates.

Engineer's Estimate: \$3,500,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE*
J.F. Shea Construction, Inc., Walnut, CA	\$ 2,556,618	\$507,600	19.86%	Yes
Mladen Buntich Construction Co. Inc., Upland, CA	\$ 2,655,000	-	-	-
Steve P. Rados, Inc., Santa Ana, CA	\$ 2,890,000	-	-	-
L.H. Woods & Sons, Inc., Vista, CA	\$ 3,670,000	-	-	-

*SBE (Small Business Enterprise) participation was established at 10% for this contract

